

H₂ PLASMA TREATMENT

ABSTRACT

Electronic devices are constructed by a method that includes forming a first
5 conductive layer in an opening in a multilayer dielectric structure supported by a
 substrate, forming a core conductive layer on the first conductive layer, subjecting
 the core conductive layer to a H₂ plasma treatment, and depositing a capping
 adhesion/barrier layer on the core conductive layer after the H₂ plasma treatment.
 The multilayer dielectric structure provides an insulating layer for around the core
10 conducting layer and at least one sacrificial layer for processing. The H₂ plasma
 treatment removes unwanted oxide from the surface region of the core conducting
 layer such that the interface between the core conducting layer and the capping
 adhesion/barrier is substantially free of oxides. In an embodiment, the core
 conducting layer is copper with a titanium nitride or zirconium capping
15 adhesion/barrier layer.